

Amendments to the Claims

1. – 13. (CANCELED)

14. (CURRENTLY AMENDED) An imaging system comprising:

a means for administering varying levels of vasoactive agents to a human or animal subject having a region of interest, wherein said region of interest comprises human tissue or animal tissue;

a near infrared light source directed at said region of interest;

an in vivo image acquisition means for acquiring in vivo images of said region of interest before and during administration of said varying levels of vasoactive agents, wherein said varying levels of vasoactive agents comprises CO₂ and O₂ administered in opposition or alternation; and

a processing means for analyzing said in vivo images to identify vasculature associated with angiogenic vasculature in cancerous tumors.

15. (CANCELED)

16. (ORIGINAL) The imaging system of claim 14, wherein said image acquisition means is a charge-coupled device camera that is sensitive in near infrared.

17. (ORIGINAL) The imaging system of claim 14, wherein said near infrared light source is an array of light emitting diodes capable of operating at a plurality of wavelengths including 780 nm, 840 nm and 970 nm.

18. (ORIGINAL) The imaging system of claim 14, further comprising:

an immersion medium immersing said region of interest; and

a holding means containing said immersion medium.

19. (ORIGINAL) The imaging system of claim 18, wherein said immersion medium is a tissue phantom liquid having optical properties substantially matching those of said region of interest.

20. (ORIGINAL) The imaging system of claim 18, wherein said holding means is a doughnut-shaped transparent bag filed to a slight overpressure to press against said region of interest.

21. (ORIGINAL) The imaging system of claim 14, further comprising:

one or more flow controllers for controlling levels of said vasoactive agents being administered to said subject.

22. (ORIGINAL) The imaging system of claim 21, wherein said flow controllers are capable of rapidly alternating among different gas compositions containing said vasoactive agents while continuously varying levels of said vasoactive agents.